

REVISIONAL NOTES CONCERNED WITH  
CIMBOCERA AND RELATED GENERA  
(COLEOPTERA, CURCULIONIDAE)

By PETER C. TING, SR.<sup>1</sup>

State Department of Agriculture, San Francisco, California\*

In order to more correctly place certain new species described herein a rather critical study was made of the genus *Cimbocera* Horn and other closely related genera which revealed the need for several revisional changes. The so-called "*Cimbocera complex*" in North America includes the genera *Cimbocera* Horn, *Paracimbocera* Van Dyke, *Miloderoides* Van Dyke, *Cryptolepidus* Van Dyke, and *Miloderes* Casey. The apparent close relationship of these five genera now placed in the Tropiphorini is possibly only artificial and further comprehensive studies of the higher categories will probably place *Miloderoides*, *Cryptolepidus*, and *Miloderes* in other tribes. The present study undertaken by the author is a necessary preliminary step, and is only to reappraise the status of the included species, to assign or transfer them to their proper generic position, and to elucidate their more salient generic and specific characters.

Recently Dr. E. C. Van Dyke (1934, p. 182; 1935, p. 3) properly raised *Cimbocera conspersa* Fall to full specific rank, showing by a discussion of obvious characters that it is not a variety of *pauper* Horn as contended by Dr. W. D. Pierce (1913, p. 379). Van Dyke (1935, p. 3) also has rightly suppressed the variety *sericea* Pierce listing it as a synonym of *conspersa*.

The type specimens of all species discussed have been personally examined by the author, with the exceptions of *Cimbocera conspersa* Fall, *Cimbocera pauper sericea* Pierce, and *Cimbocera pauper* Horn. However, the writer has a specimen of *conspersa* (an undesignated metatype) which was identified for him by its author, the late Dr. H. C. Fall; a paratype of *sericea* is at hand; the location of the unique "Dacota" type of *pauper* is unknown. The species here accepted as *pauper* is the one currently recognized by specialists as such, and which answers perfectly Horn's original description.

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\* Now with the Division of Insect Identification and Classification, Bureau of Entomology and Plant Quarantine, Washington, D. C.

## PROCEDURE AND TERMINOLOGY

The length of specimens considered in this paper is measured from the anterior margin of the eye to a point in vertical alignment with the apex of the elytron. The width given is for the widest section of the elytra, pronotum, et cetera. The length of the antennal scape in relation to the eye is determined when the former is lying in its scrobe. The term subapical area of L. L. Buchanan (1939, p. 10) is used for the region on the rostrum immediately posterior to the nasal plate which is often impressed, glabrous, or with sculpturing and vestiture finer or differently colored. The distal more obvious labial region is termed the prementum and the basal part, the gular peduncle or submentum of curculionid literature, is termed the postmentum.

The author (1936, p. 102) has previously shown by comparative anatomical studies that the submentum and mentum of other Coleoptera is fused in the Rhynchophora forming the postmentum. Often the postmentum is not evident externally as a separate region articulating with the prementum and this characteristic is utilized in the present paper. In determining whether the prementum is setose or entirely glabrous on its ventral surface one must exercise care not to confuse the adjacent maxillary, or labial palpal setae with those of the prementum.

Recently L. L. Buchanan (1939, p. 10) and Fritz Van Emden (1936, p. 73) have explained and illustrated the often confused tibial structures of open and closed corbels, as found in the Rhynchophora, and have applied certain new terminology to associated structures which are useful in classification and identification. Briefly, "closed corbel" denotes two transverse or oblique rows of spinules on the outer face (anterior face, if legs extended at right angles to abdomen) near the apex of the hind tibia. The interstice or "corbel plate" may be glabrous, setose, or squamose. Buchanan has termed the most apical row of spinules the "distal comb" (inner spinous row of Van Emden) and the subapical row the "anterior comb" (exterior spinous row of Van Emden). If the distal comb extends along the dorsal margin beyond the end of the anterior comb toward the base of the hind tibia it is then termed the "dorsal comb" (Buchanan). When only a distal comb is present and no corbel plate is evident the corbels are open. On the other hand if only an anterior comb exists with the "interstice" glabrous the condition is termed by Van Emden as "corbel apparently closed" and in this case all three pairs of legs are said to be alike. "Corbels open or closed" refers only to the hind legs. The "tarsal groove" (Van Emden) is the terminal area between the outer and inner extreme apical margins of the hind tibiae—the depressed area on which the tarsi are articulated.

Several of the species discussed in the present paper do not clearly belong in any one of the preceding corbel types, but have the spinules of both the anterior and distal combs irregularly placed with no distinct corbel plate between them (Plate 26). The author believes that in these particular species the condition is a variation or specialization of the closed type of corbel. The fore and middle legs often have the apical row of tibial spinules continued obliquely on the ventral, posterior face of the tibia and these spinules beyond and behind the tibial mucro are termed the "ventral comb" in the present paper. As shown in Plate 26 the spinules of the ventral comb are finer and closer together than those of the apical row.

The terminology and homology of parts of the male and female genitalia are adopted from the studies of Sharp and Muir (1912) and Tanner (1927), and from Herberdey (1931), Barber (1935), Bissell (1937), and Darlington (1938), who have pointed out certain corrections or have added new terminology to the first mentioned comprehensive papers.

#### CHARACTERIZATION OF THE CIMBOCERA GROUP

The five genera of the *Cimbocera* group may be separated from the rest of the tribe Tropiphorini (of American authors) by the following key:

- Tarsal segments on ventral surfaces with bristle-like setae only or with greatly reduced pubescent tufts at their apices (males of certain species with pubescent pads on over half the ventral surface of third tarsal segment; first and second segments with only apical tufts.) Last segment of funiculus closely applied to base of antennal club. Female genitalia, except in *Miloderoides*, without coxal styli.....*Cimbocera* group
- Tarsal segments on ventral surfaces completely covered with pubescent pads. Last segment of funiculus not closely associated with base of antennal club. Female genitalia generally with coxal styli.....*remaining Tropiphorini*

#### KEY TO GENERA

1. No pubescence on ventral surfaces of tarsal segments—only bristle-like setae present. Third tarsal segment only slightly, if at all, larger than second..... 2
- Small tufts of pubescence present at apices of tarsal segments. Third tarsal segment generally distinctly larger than second (both characters much more pronounced on male specimens.. 3
2. Postocular prothoracic lobes distinct. Antennal scrobes shallow and greatly widened at posterior end....Genus *Cimbocera* Horn
- Postocular prothoracic lobes and vibrissae absent. Antennal scrobes deep and only slightly widened at posterior end .....Genus *Cryptolepidus* Van Dyke

3. Antennal scrobes shallow and greatly widened at posterior end. Postocular prothoracic lobes prominent. Pubescent tarsal tufts in both sexes present only on third segment of all legs ..... Genus *Paracimbocera* Van Dyke

Antennal scrobes deep and only slightly widened at posterior end. Postocular prothoracic lobes absent or only slightly evident. Pubescent tufts present in males at apices of basal three tarsal segments on fore legs..... 4

4. Rostrum one-fourth longer than distance between eyes. Antennal funicular segments 3 to 7 cupped at apices. Postocular lobes absent..... Genus *Miloderoides* Van Dyke

Rostral length slightly less than distance between eyes. Antennal funicular segments 1 to 6 not cupped at apices. Postocular lobes slightly evident..... Genus *Miloderes* Casey

#### Genus CIMBOCERA Horn

1876. *Cimbocera* Horn, p. 55-56.  
 1883. *Cimbocera*, Horn, p. 443-444.  
 1888. *Cimbocera*, Casey, p. 253.  
 1907. *Cimbocera*, Fall, p. 261-262.  
 1909. *Cimbocera*, Pierce, p. 346-347.  
 1913. *Cimbocera*, Pierce, p. 377-379.  
 1934. *Cimbocera*, Van Dyke, p. 182.  
 1935. *Cimbocera*, Van Dyke, p. 1-4.  
 1936. *Cimbocera*, Van Dyke, p. 73-77 (1936a).  
 1938. *Cimbocera*, Van Dyke, p. 1-2.

GENOTYPE: *Cimbocera pauper* Horn (monotypic).

SALIENT CHARACTERS: Vestiture consisting of rather closely adhering scales and suberect setae. Rostrum with transverse constriction at base; prementum bisetose or quadrisetose and narrowed at base; maxillae partly exposed; postmentum evident as a short narrow peduncle; antennal scrobes shallow except at base, margins diverging toward apex, extending to ventral margin of rostrum to a point about one-fourth length of same in front of eyes; antennal scape reaching slightly beyond front margin of eyes, first and second funicular segments longer than wide, remaining segments broader than long and cupped at apices. Eyes slightly oval in vertical plane. Postocular prothoracic lobes and vibrissae present. Elytral striae and serial punctures evident; intervals flat or slightly convex; humeri rounded or nearly so. Fore and middle tibiae always mucronate; hind tibiae with minute mucro in some species. Fore tibiae denticulate along ventral margins; hind tibiae with corbels closed but with spinules



of anterior comb irregularly placed (see Plate 26). Tarsi ventrally clothed with bristle-like setae—no pubescent tufts or pads present; third tarsal segment not noticeably wider than second. Claws free. Female genitalia with coxites separated at base by transverse suture from “valvifers”, flexible near apices of “valvifers” and at base of coxal apices; heavily sclerotized coxal apices at right angles to main body of coxites (Plate 25); coxal styli absent. Males unknown.

DISCUSSION: The combination of setose, uniformly-sized tarsal segments, shallow and posteriorly widened antennal scrobes, and prominent postocular lobes does not exist in any of the known related genera. The species *robusta* Van Dyke, *cinerea* Van Dyke, and *cazieri* Van Dyke are here removed from the genus *Cimbocera* and placed as follows:

The former species, *robusta*, is placed in the genus *Paracimbocera* Van Dyke, since a male paratype (to be designated allotype in this paper) now in the collection of the California Academy of Sciences, San Francisco, has the third tarsal segment distinctly larger than the second and with much of its surface pubescent. Van Dyke's allotype is a slender female.

The species *cinerea* belongs in *Miloderoides* Van Dyke as shown by its total lack of postocular lobes, the presence of postocular vibrissae, the presence of small apical pubescent tufts on the third tarsal segments of the fore legs (on the type specimens the pubescent tarsal tufts and the long elytral setae are greatly rubbed or worn down), the deep narrow antennal scrobes, the characteristic shape of the rostrum and head, and the presence of coxal styli on the female genitalia. The single paratype of *cinerea* has the apex of the genitalia exerted so that it can be examined to some extent without further dissection.

The species *cazieri* belongs in *Cryptolepidus* Van Dyke as indicated by its non-setose prementum, its narrow, deep, nearly parallel-sided antennal scrobes, and the absence of postocular lobes and vibrissae.

#### KEY TO SPECIES

1. Tarsal bristles and tibial spinules pitch black. Pronotum slightly tuberculate.....*buchanani*, new species  
     Tarsal bristles and tibial spinules yellow or reddish brown.  
     Pronotum smooth ..... 2
2. Rostral setae length subequal with head setae. Rostrum with narrow median sulcus; slightly constricted at base and not, or only slightly, longer than broad. Color predominantly dark brown.....*pauper* Horn  
     Rostral setae only one-fourth length of head setae. Rostrum without median sulcus; greatly constricted at base and not, or only slightly, longer than broad. Color grey mottled brown or black.....*consersa* Fall

## CIMBOCERA PAUPER Horn

(Plates 25, 26)

1876. *Cimbocera pauper* Horn, p. 56.  
1907. *Cimbocera pauper* Horn, Fall, p. 262.  
1909. *Cimbocera pauper* Horn, Pierce, p. 347.  
1913. *Cimbocera pauper pauper* Horn, Pierce, p. 379.  
1934. *Cimbocera pauper* Horn, Van Dyke, p. 182.  
1935. *Cimbocera pauper* Horn, Van Dyke, p. 1, 3.

TYPE LOCALITY: "Dacota".

DISTRIBUTION: Canada (Southern Alberta. The Carnegie Museum has a specimen, not examined by the author, which is labeled Hudson Bay). United States (Montana, Wyoming, North and South Dakota, Nebraska).

TYPE: Location of unique type unknown.

SALIENT CHARACTERS: Length 5.9 mm. - 6.1 mm. Width 2.6 mm. - 3 mm. Color dark brown with sides grey; tarsal bristles and tibial spinules reddish brown.

Rostrum with slight transverse constriction at base; one-third to one-half longer than wide; fine median sulcus; setal vestiture about same length as head setae; subapical area rugose and nearly glabrous; prementum quadrisetose. Pronotal sides strongly and evenly convex; surface smooth. Elytral scales imbricated; intervals flat. Metaepisternal suture distinct. Corbels with spinules of anterior comb short and irregularly placed; 12 to 18 spinules in distal comb in front of tibial mucro; 8 to 11 spinules in anterior comb. Fore tibia with ventral comb spinules about uniform size, adjacent basal brush of finer hair-like setae. Female genitalia and eighth abdominal sternite as shown in Plate 25.

DISCUSSION: As previously stated the species accepted as *pauper* agrees with Horn's original description and is the one currently recognized as such by authors. It is easily distinguished from other known *Cimbocera* by its more slender sulcate rostrum; the head and rostral setae of same length; and the rather uniform dark brown color.

CIMBOCERA BUCHANANI, new species

(Plate 26)

TYPE LOCALITY: New Mexico (Albuquerque, Bernalillo Co.).

DISTRIBUTION: New Mexico (Albuquerque, San Marcial, Santa Fe, Mesilla Park, and Torrance Co.); Utah (Marysville, St. George, Chad's Rch.); Arizona (Winslow, St. John's, Peach Sp'g); Texas (El Paso, Sierra Blanca); Colorado (Florence).

TYPE: Female Type (June 27—Wickham Collection 1933) and 26 paratypes deposited in the United States National Museum, U.S.N.M. Cat. No. 53757. Eight paratypes in the California Academy of Sciences, San Francisco; thirteen paratypes in the author's collection, Berkeley, California.

SALIENT CHARACTERS: Length 5 mm.-8 mm. Width 2.2 mm.-3.5 mm. Color cupreous tan mottled black; pronotum with median white vitta and wide lateral black vittae; antennal club nearly black; tarsal bristles and tibial spinules pitch black.

Rostrum transversely constricted at base; one-sixth longer than broad; often with fine line-like median sulcus; setal vestiture one-half shorter than head setae; subapical area depressed and V-shaped with apex of depression extending posteriorly to a point opposite antennal articulation; prementum quadrisetose, but one or more setae generally worn off; mandibular appendage slender without mesal tooth. Pronotal sides evenly rounded; one-eighth broader than long; surface slightly tuberculate. Elytral scales imbricated; humeri slightly evident as reflexed rim; striae deeper than *paupe*r; intervals flat. Metaepisternal suture obsolete. Corbels with spinules of anterior comb shorter than those of distal comb and irregularly placed; 14 to 16 spinules in distal comb before minute mucro (mucro occasionally absent), 6 to 7 spinules beyond mucro; 2 to 5 spinules in anterior comb. Fore tibiae with median spinules of ventral comb much finer than outer spinules; all spinules of comb coarser than those of basal brush; basal brush and median spinules of ventral comb dark brown, outer spinules pitch black. Female genitalia with membranous area at apex of "valvifer" one-third larger than on *paupe*r; ventral sclerotization of "valvifer" not narrowed into distinct baculum as in *paupe*r.

DISCUSSION: This new species was called to my attention by Mr. L. L. Buchanan after whom it is named in appreciation of his co-operation and willingness to assist others in their investigations. It is distinct from *paupe*r and *consersa* by having pitch black tarsal bristles and tibial comb spinules in place of the yellow or reddish brown bristles and spinules of the latter species. The tuberculate pronotum, general appearance, and genitalic structures are also constant diagnostic characters of *buchanani*.

CIMBOCERA CONSPERSA Fall

(Plate 26)

1907. *Cimbocera conspersa* Fall, p. 261.  
1909. *Cimbocera conspersa* Fall, Pierce, P. 347.  
1913. *Cimbocera pauper sericea* Pierce, p. 379.  
1913. *Cimbocera pauper conspersa* Fall, Pierce, p. 379.  
1934. *Cimbocera conspersa* Fall, Van Dyke, p. 182.  
1934. *Crocidema albovestita* Van Dyke, p. 190 (new synonymy).  
1935. *Cimbocera conspersa* Fall, Van Dyke, p. 1, 3.

TYPE LOCALITY: Of *conspersa*, New Mexico (Santa Fe); of *pauper sericea*, Utah (American Fork Canyon); of *Crocidema albovestita*, Arizona (19 miles S.W. Kayenta, Navajo Co.).

DISTRIBUTION: New Mexico, Colorado, Utah, Arizona, and Nevada (?). All specimens from Nevada labeled *conspersa* which were examined by the author belong to a new species of *Paracimbocera*.

TYPE: Of *conspersa* in Fall collection Mus. Comp. Zool., Cambridge, Mass.; of *pauper sericea* in U. S. Nat. Mus.; of *albovestita*, a Holotype, in Calif. Acad. Sc., San Francisco.

SALIENT CHARACTERS: Length 5.1 mm - 7 mm. Width 2.4 mm. - 3 mm. Color grey mottled black or brown; pronotum generally with white median vitta; tarsal bristles and tibial spinules lighter than *pauper* almost yellow.

Rostrum with deep, transverse, basal constriction; not longer than broad; no median sulcus; setal vestiture four to five times shorter than head setae; subapical area smaller and smoother than *pauper*, only entirely glabrous area belongs to base of nasal plate; prementum bisetose. Pronotal sides less convex than *pauper*; surface smooth; postocular lobes smaller than *pauper*. Elytral scales close but not imbricated except at sides; intervals slightly convex. Metaepisternal suture generally distinct (this character depends upon the abundance and placement of scales in individual specimens). Corbels with spinules of anterior comb more slender than in *pauper* and arranged quite regularly in single transverse row; 14 to 16 spinules in distal comb; 9 to 11 spinules in anterior comb. Fore tibia with spinules of ventral comb finer than *pauper* about uniform-sized and of same color as basal brush. Female genitalia similar to that of *pauper* but with many more setae on coxites; sclerotized apices of coxites slightly shorter and broader than in *pauper*. Eighth abdominal sternite without emargination at apex.

DISCUSSION: *Crocidema albovestita* was described from a single, slightly rubbed specimen of *Cimbocera conspersa*. The genus *Crocidema* Van Dyke is easily separated from *Cimbocera* by the dense pubescence of the tarsi.

As previously stated, Van Dyke has shown that *conspersa* is distinct from *pauper* and that *sericea* is a synonym of the former.

*C. conspersa* is distinct from the other known *Cimbocera* by the presence of only two setae on the prementum in place of four. Although this premental character is of definite structural significance, it does not appear to be of generic value in this section of the Curculionidae. However, if further studies and additional material should indicate a natural grouping of species into subgenera, the bisetose or quadrisetose prementa would be convenient key characters together with the pubescent third tarsal segment of *Paracimbocera*. Additional distinctive characters of *conspersa* are its yellow tarsal bristles and its non-sulcate rostrum with setae only one-fourth the length of the head setae.

#### Genus PARACIMBOCERA Van Dyke

1938. *Paracimbocera* Van Dyke, p. 1.

GENOTYPE: *Paracimbocera atra* Van Dyke (original designation).

SALIENT CHARACTERS: Identical to *Cimbocera* Horn except for the following characters: Third tarsal segments slightly to greatly expanded and with apical tufts of pubescence, remaining tarsal segments with setose bristles only (females of *robusta* apparently without pubescent tarsal tufts). Female genitalia with sclerotized coxal apices slightly shorter, broader, and diverging less than in *Cimbocera*. Male genitalia as shown in Plate 24.

DISCUSSION: *Paracimbocera* is unquestionably closely related to *Cimbocera* from which it is chiefly separated by certain tarsal characters. The genus as represented by the genotype and other typical species is separated from closely related genera by the following combination of characters: third tarsal segment wider than the second and with apical pubescent tufts; shallow and posteriorly widened antennal scrobes; and prominent post-ocular lobes.

Female specimens of *robusta* have the third tarsal segment only slightly wider than the second and apparently without apical pubescent tufts (the pubescence may be worn off on the specimens examined). As previously mentioned the males of *robusta*



have the third tarsal segment much wider than the second and with apical pubescent tufts. Female specimens of *artemisiae* have the third tarsal segment only slightly wider than the second but with apical pubescent tufts. The males of *artemisiae* are unknown. The unique female type of *atra* has the third tarsal segment wider than the second and with apical pubescent tufts. A large series of specimens of *Paracimbocera* sp. probably *atra* in the author's collection has the third tarsal segment wider than the second and with apical pubescent tufts in both sexes. Positively identified males of *atra* are unknown.

From the species and specimens at hand the diagnostic tarsal characters of *Paracimbocera* appear to be constant only in the male sex and the above information would seem to indicate that it is actually but a subgenus of *Cimbocera*. However, until additional evidence is obtained the present writer is inclined to accept *Paracimbocera* as a valid genus.

#### KEY TO SPECIES

1. Rostral and head setae same length as longer elytral setae.  
Elytral setae of two types, the shorter one-third length of longer type. Tarsal bristles and tibial spinules pitch black  
.....*robusta* (Van Dyke)
- Rostral and head setae one-third (or less) length of elytral setae. Elytral setae on dorsal intervals all about same length. Tarsal bristles and tibial spinules dark or reddish brown ..... 2
2. Elytral setae length on declivity<sup>2</sup> four times width of intervals; three to four irregular rows of setae per interval on declivity. Tarsal bristles and corbel spinules dark brown—nearly black. Metaepisternal suture distinct....*atra* Van Dyke
- Elytral setae length on declivity two times width of intervals; two or three irregular rows of setae per interval on declivity. Tarsal bristles and corbel spinules reddish brown. Metaepisternal suture obscured.....*artemisiae*, new species

#### PARACIMBOCERA ATRA Van Dyke

1938. *Paracimbocera atra* Van Dyke, p. 2.

TYPE LOCALITY: Nevada (Las Vegas).

DISTRIBUTION: Known only from the type locality.

TYPE: Holotype female, a unique, in the California Academy of Sciences, San Francisco.

<sup>2</sup> The unique type of *atra* has the elytral setae worn off on the dorsum making it impossible to compare their length directly with the dorsal intervals.

**SALIENT CHARACTERS:** Length 6 mm. Width 2.8 mm. Color black with a few indistinct small patches of grey scales, the color undoubtedly is not natural since the unique type is badly rubbed and necessarily discolored. Tarsal bristles and tibial spinules nearly black (probably natural color).

Rostrum transversely constricted at base; prominent median fovea opposite antennal articulation, probably an individual variation; setal vestiture about same length as head setae, but slightly worn down; prementum bisetose; subapical area with small, glabrous, triangular region immediately back of nasal plate, remaining part not depressed and with scales slightly smaller; nasal plate short, nearly truncate. Pronotum 2.1 mm. wide, 1.8 mm. long; sides slightly convex; no median sulcus. Elytral intervals flat; humeri obsolete; declivity with setae four times longer than interval width or three times width of intervals on dorsum; three to four irregular rows of setae per interval. Metaepisternal suture present. Distal comb with 14 spinules to small tibial mucro, 7 spinules behind mucro; anterior comb with 6 spinules one-third length of those in distal comb. Middle tibia at apex with 14 spinules before mucro, 7 or 8 spinules behind mucro. Fore tibia with 8 spinules in ventral comb with those in middle section much finer; basal brush with dark brown hair-like setae; 12 spinules at tibial apex before mucro. Third tarsal segment much more expanded than in females of *robusta* and *artemisiae*.

**DISCUSSION:** If the unique type of *atra* is typical of the species, the females are peculiarly slender. This species is readily separated from the other named species placed in the genus by the dense setae of nearly uniform length on the elytral declivity which are four times longer than the interval width. The distinct metaepisternal suture, nearly black corbel spinules, and expanded third tarsal segment in the female are also distinctive features of *atra*.

Messrs. M. A. Cazier, T. Aitken, A. Downes, and the author collected a series of over eighty specimens at Coleville, California and Gerlach, Nevada which greatly resemble *atra*. However, until more specimens of *atra* are examined from the type locality it seems impossible to definitely determine the status of the Coleville specimens. This is particularly true since many minute characters are missing on the type of *atra* due to its rubbed and discolored condition. The number of spinules in the anterior comb of the Coleville specimens vary from six to eighteen as compared with six on the type of *atra*. Considerable dimorphism exists in the Coleville and Gerlach specimens, the females being predominantly grey and strongly vittate while the males are dark brown with narrower less prominent elytral vittae. The male genitalia has a slender median lobe, laterally depressed, and with apex beyond median orifice short and oval as shown in Plate 24; apex of internal sac shown in Plate 25.

PARACIMBOCERA ARTEMISIAE, new species

(Plate 26)

TYPE LOCALITY: Wyoming (Rawlins, Carbon Co.).

DISTRIBUTION: Wyoming (Rawlins); Colorado (Grand Valley); Idaho (Oakley); Nevada (Elko, and Esmeralda Co.).

TYPE: Holotype female (VI-4-38, P. C. Ting collector, *Artemisia* sp.) and two paratypes deposited in the California Academy of Sciences, San Francisco, (C.A.S. Ent. No. 4821). Three paratypes in the United States National Museum; one paratype in the Los Angeles Museum; one paratype in the collection of M. A. Cazier, Berkeley, California; five paratypes in the author's collection.

SALIENT CHARACTERS: Length 5.8 mm. - 7.5 mm. Width 3 mm. - 3.8 mm. Color grey and black mottled, either color may be predominant; often with a black irregular vitta along second elytral interval. Tarsal bristles and tibial spinules reddish brown.

Rostrum transversely constricted at base, one-tenth longer than broad; setal vestiture one-third to one-half length of head setae; prementum bisetose; subapical area not depressed or convex but with scales slightly sparser and smaller, a narrow glabrous semi-circular area immediately posterior to nasal plate; mandibular appendage slender without mesal tooth, with broad longitudinal channel on exterior surface. Pronotum slightly wider than long (1.8: 1.7); faintly convex at sides; surface smooth or with scales raised giving a slight tuberculate appearance; setae reclinate one-third to one-half shorter than elytral setae. Elytral striae fine; intervals flat; humeri obsolete; setae on dorsum about length of interval width, two to three irregular rows per interval; setae on declivity about twice the length of interval width. Metaepisternal suture obsolete. Distal comb with 11 to 14 spinules; anterior comb with 5 to 6 spinules one-third to one-half length of distal comb spinules. Fore tibia with spinules of ventral comb about uniform size, last two of posterior end larger; basal brush slightly paler than ventral comb. Third tarsal segment slightly wider than second and with small apical tufts of white pubescence. Female genitalia with ventral sclerotization of "valvifer" narrowed into a broad baculum-like structure; sclerotized coxal apices longer and narrower than in specimens from Coleville, California, discussed under *atra*. Males unknown.

DISCUSSION: Distinctive characters of *artemisiae* are: the two or three irregular rows of elytral setae of nearly uniform length one and one-half to two times longer than the interval width; third tarsal segment only slightly larger than the second

but with apical pubescent tufts; reddish brown tarsal bristles and tibial spinules; and the ventral comb of the fore tibia with only two spinules greatly larger than the others instead of four or five larger spinules as in *atra* and *robusta*. Certain large specimens of *artemisiae* are predominantly grey, but are structurally the same as the smaller specimens strongly mottled with black.

The writer collected this species at both Rawlins, Wyoming and Elko, Nevada where they were observed to definitely prefer *Artemisia* sp. The species was collected at Grand Valley, Colorado, on April 5, 1911 by Mr. H. Collier who observed them injuring the twigs of apple trees.

PARACIMBOCERA ROBUSTA (Van Dyke), new combination

1935. *Cimbocera robusta* Van Dyke, p. 2.

TYPE LOCALITY: Of Holotype California (Mason Valley, San Diego Co.). Of Allotype California (San Felipe Valley, San Diego Co.).

DISTRIBUTION: California (Mason Valley, San Felipe Valley, San Diego Co.).

TYPE: Holotype female in California Academy of Sciences, San Francisco. A paratype male is here designated as Allotype<sup>3</sup> (C. A. S. Ent. No. 4942). As previously stated the Van Dyke Allotype is a female.

SALIENT CHARACTERS: Length 5 mm. - 6.5 mm. Width 2.5 mm. - 3.8 mm. Color dark or reddish brown often with grey vittae on pronotum and elytra. Tarsal bristles and tibial spinules pitch black.

Rostrum transversely constricted at base; setal vestiture and head setae about same length and unusual in being as long as longer type of elytral setae; prementum quadrisetose; subapical area not depressed with scales slightly sparser, some specimens with narrow transverse glabrous area just posterior to nasal plate. Pronotum wider than long (2.2: 1.8); dorsum with double type of setal vestiture. Elytra with intervals flat; humeri present as faint basal reflexed rim; elytral vestiture of two types, the longer setae are reddish brown and two to three times longer than interval width, the shorter setae are white and about the length of the interval width. Metaepisternal suture obsolete. Corbels with 15 to 17 spinules in distal comb, before small mucro; 10 to 11 spinules in anterior comb quite regularly placed. Middle

<sup>3</sup> Following Fernald (1939, pp. 691-692) the term Allotype is used in place of Allolectotype, Lectoallotype, or Neallotype. Fernald points out that the term Allotype as originally proposed by Muttkowski may apply to subsequent descriptions by any author.

tibia with 14 spinules at apex before mucro. Fore tibia with 12 spinules before mucro; 11 to 12 spinules in ventral comb four of which are larger than the others. Third tarsal segment of male greatly expanded and with apical pubescent tufts; female with third tarsal segment only slightly larger than second and without pubescent tufts (unless specimens examined have the pubescence worn off).

DISCUSSION: *Paracimbocera robusta* is easily distinguished from the other known species in the genus by the rostral, head, and longer type of elytral setae being nearly the same length. The pitch black tibial spinules and the double type of elytral setae are also characteristic features. The males are distinguished by the enlarged third tarsal segment. In general the males are probably more slender, but this is not a positive criterion for determining the sex—the most slender specimen in the type series being a female. The eighth abdominal sternite is visible in the latter specimen, making it possible to determine the sex without dissection.

#### GENUS MILODEROIDES Van Dyke

1936. *Miloderoides* Van Dyke, p. 74-77 (1936a).

1938. *Miloderoides*, Van Dyke, p. 2.

GENOTYPE: *Miloderoides maculatus* Van Dyke (original designation).

SALIENT CHARACTERS: Vestiture of imbricated scales and long suberect dense setae. Rostrum with narrow angulate constriction at base, and with fine median sulcus; prementum without setae; postmentum evident; maxillae partly exposed; antennal scrobe narrow, deep, and nearly parallel-sided; antennal scape reaching middle of eye, first and second funicular segments longer than broad remaining segments broader than long and cupped at apices. Eyes protuberant, nearly round. Postocular prothoracic lobes absent; vibrissae present. Elytral striae and serial punctures faintly evident; intervals flat; humeri evident as faint reflexed basal rim. Metaepisternal suture present. Tibiae of all legs mucronate. Corbels closed with spinules in anterior comb regularly placed. Males with apical pubescent tufts on tarsal segments one to three of fore legs; middle and hind legs with pubescent tufts only on tarsal segment three; third tarsal segment expanded and larger than second. Females with apical pubescent tufts only on third tarsal segment of fore legs; pubescent tarsal tufts absent from middle and hind legs (possible worn off on specimens examined); third tarsal segment only slightly wider than second. Claws free. Female genitalia with coxal



styli; coxites and "valvifers" fused but with small lateral oval-shaped membranous area at base of apparent coxal region (Plate 25). Male genitalia as shown in Plate 24. Eighth abdominal tergite of male with transverse, dorso-apical impression.

DISCUSSION: The following combination of characters will separate *Miloderoides* from other genera of the *Cimbocera* group: postocular prothoracic lobes absent, but vibrissae present; narrow, rather deep, nearly parallel-sided antennal scrobes; antennal funicular segments three to seven cupped at apices; rostrum one-fourth longer than distance between eyes. *Miloderoides* is the only genus in the *Cimbocera* group with coxal styli on the female genitalia.

#### KEY TO SPECIES

- Rostrum without triangular-shaped depression in subapical area; corbel spinules black, well spaced; general color grey and dark brown mottled.....*maculatus* Van Dyke
- Rostrum with subapical area depressed, triangular-shaped; corbel spinules amber color and crowded together; general color grey and reddish brown mottled.....*cinereus* (Van Dyke) (= *argenteus* Van Dyke)

#### MILODEROIDES MACULATUS Van Dyke

(Plates 24, 25, 26)

1936. *Miloderoides maculatus* Van Dyke, p. 76 (1936a).

TYPE LOCALITY: Idaho (Parma).

DISTRIBUTION: Known only from type locality.

TYPE: Holotype male in the California Academy of Sciences, San Francisco. A female paratype from the original series is here designated as Allotype (C. A. S. Ent. No. 4944).

SALIENT CHARACTERS: Length 5 mm. - 5.5 mm. Width 2.1 mm. - 2.4 mm. Color grey and dark brown mottled, pronotal vittae often nearly black with cupreous luster. Tarsal bristles and tibial spinules black.

Rostral setae as long as head setae; subapical area not depressed or of any definite shape. Pronotum slightly wider than long (1.6: 1.4). Elytral setae very dense and about four times longer than width of intervals. Tibiae along ventral margins with several black or amber colored spine-like setae. Corbel spinules separated by one-third their length. Male and female genitalia as shown in Plates 24, 25 and 26.

DISCUSSION: The males are only slightly more slender than the females. Tarsal characters for distinguishing the sexes are given in the generic description. *M. maculatus* and *cinereus* (= *argenteus*) the only other named species in the genus are easily separated by the preceding key.

MILODEROIDES CINEREUS (Van Dyke), new combination

(Plates 24, 25)

1935. *Cimbocera cinerea* Van Dyke, p. 1. ♀  
1935. *Miloderes argenteus* Van Dyke, p. 4 (new synonymy). ♂  
1936. *Cimbocera cinerea* Van Dyke, Van Dyke, p. 74 (1936a).  
1936. *Miloderoides argenteus* (Van Dyke), Van Dyke, p. 75-76 (1936a).

TYPE LOCALITY: Of *cinereus*, Colorado (Grand Junction); of *argenteus*, Colorado (Grand Junction).

DISTRIBUTION: Known only from the type locality.

TYPE: Of *cinereus*, a Holotype female; of *argenteus*, a Holotype male. Both are in the California Academy of Sciences, San Francisco. A male paratype of "*argenteus*" is here designated as Allotype (C. A. S. Ent. No. 4945).

SALIENT CHARACTERS: Length 4.5 mm.-6 mm. Width 2 mm.-3 mm. Color grey and reddish tan or brown mottled. Tarsal bristles and tibial spinules amber color.

Similar to *maculatus* except for the following: Rostral setae probably same length as head setae (badly worn on available specimens); subapical area depressed and triangular-shaped. Eyes less convex. Pronotum wider than long (1.9: 1.6). Tibiae possibly without spine-like setae on ventral margins (legs of available specimens badly rubbed). Corbel spinules crowded together. Male genitalia as shown in Plate 24.

DISCUSSION: The sexes are easily distinguished by the tarsal characters given in the generic description.

*M. cinereus* was described from two badly rubbed female specimens which have the dense elytral setae worn down to about one-fifth their normal length. The species was placed in the genus *Cimbocera* obviously because of its narrow third tarsal segment and the worn condition of the pubescent tufts on the third tarsal segment of the fore legs. It is not congeneric with *Cimbocera*, even in the female, as indicated by the absence of postocular lobes, the absence of premental setae, and by the form

of the antennal scrobes which are deep, narrow and parallel-sided. *M. argenteus* was described from the males of *cinereus* which were collected on the same day and at the same locality as the latter. They were not associated with *cinereus* evidently because of the long elytral setae and expanded third tarsal segment. As previously stated, the enlarged third tarsal segment bearing pubescent tufts is a secondary sexual character of the species and is also a generic character of *Miloderoides* which appears only in the male. Except for the elytral setae and secondary sexual characters of the tarsi, the original descriptions of *cinereus* and *argenteus* are quite similar.

#### Genus CRYPTOLEPIDUS Van Dyke

1936. *Lepidopus* Van Dyke, p. 76-77 (1936a).

1936. *Cryptolepidus* Van Dyke, p. 191, change of name by Van Dyke (1936b).

1938. *Cryptolepidus*, Van Dyke, p. 2.

GENOTYPE: *Lepidopus nevadicus* Van Dyke (original designation).

SALIENT CHARACTERS: Vestiture of imbricated scales and suberect setae. Rostrum generally with transverse constriction at base; prementum non-setose; maxillae partly exposed; postmentum evident as short peduncle; mandibular appendage short, nearly straight, without mesal tooth; antennal scrobe deep, narrow, nearly parallel-sided, extending to ventral margin of rostrum to a point immediately in front of the eye; antennal scape reaching to middle or nearly to hind margin of eye, first, second, and occasionally third funicular segment longer than broad, remaining segments broader than long and cupped at apices. Eyes nearly round, slightly angular opposite end of antennal scrobe. Postocular prothoracic lobes and vibrissae absent. Elytral striae and serial punctures evident; intervals flat or slightly convex; humeri evident as small angular points. Abdominal sternites one and two of males slightly concave in median area; females with median area of basal sternites slightly convex. Fore and middle tibiae with mucro at apex; hind tibiae with minute mucro at apex only in males. Fore tibiae not denticulate along ventral margins. Hind tibia with corbels closed; spinules of either or both distal and anterior combs irregularly arranged. Tarsi ventrally clothed with bristle-like setae only, no pubescent tufts present in either sex; third tarsal segment very slightly wider than second in males, females with third tarsal segment no wider than second. Claws free. Metaepisternal suture not or only slightly visible at posterior end. Female genitalia (Plate 25) with

coxites and "valvifers" fused; large membranous section at apex of apparent "valvifer" and smaller membranous area at base of coxal sclerotized apex; coxal styli absent. Male genitalia as shown in Plates 24, 25; internal sac with sclerotized U-shaped transfer apparatus and a central tubular structure through which the sperm is probably discharged (males from three of the five known species are available for dissection).

DISCUSSION: *Cryptolepidus* is distinct from the other genera of the so-called *Cimbocera* group in lacking both postocular prothoracic lobes and vibrissae. The following are additional important characters; third tarsal segment setose and not or only slightly larger (in males) than second; prementum not setose; antennal scrobes, deep, narrow, and nearly parallel-sided.

*Cryptolepidus parvulus* (Van Dyke) (1936, p. 78) is a synonym of *Cercopeus artemisiae* Pierce (1910, p. 365). The author has compared specimens with both the Van Dyke and Pierce types. The species, however, is misplaced in the genus *Cercopeus* Schönherr due to its slender and proportionately long postmentum and to the apparent absence of mandibular appendages or scars. Furthermore, the female genitalia of *Cercopeus* lack the coxal styli and have slender "valvifers" fully three times longer than broad, whereas in *artemisiae* the coxal styli are present and the "valvifers" are short triangular-shaped structures. To correctly place this species will require studies much beyond the scope of the present paper.

#### KEY TO SPECIES

1. Elytral setae short and reclinate, not longer than one-fourth to one-half width of intervals. Head slightly convex between eyes, Pronotal sides faintly convex.....*leechi*, n. sp.

Elytral setae long and suberect, as long or longer than width of intervals. Head between eyes flat or concave. Pronotal sides strongly convex..... 2

2. Pronotum not tuberculate or rugose..... 3
- Pronotum distinctly tuberculate and rugose..... 4

3. Base of rostrum with broad somewhat arcuate, transverse constriction. Pronotum as broad as long. Elytral intervals flat. Fore tibiae with six spinules and pale colored mucro at apex, exclusive of those in ventral comb.....*nevadicus* (Van Dyke)

Base of rostrum flat. Pronotum one-fourth wider than long. Elytral intervals slightly convex. Fore tibiae with eleven spinules and a black mucro at apex, exclusive of those in ventral comb.....*planifrons*, n. sp.

4. Dorsum of rostrum longitudinally convex between base and subapical area. Median sulcus narrow, line-like. Color brown.....*cazieri* (Van Dyke)

Dorsum of rostrum longitudinally flat. Median sulcus broad. Color grey.....*rugicollis*, n. sp.

CRYPTOLEPIDUS NEVADICUS (Van Dyke)

1936. *Lepidopus nevadicus* Van Dyke, p. 77-78 (1936a).

(See change of name under generic bibliography).

TYPE: Holotype, probably a female, a unique in the California

DISTRIBUTION: Known only from type locality.

TYPE: Holotype, probably a female, a unique in the California Academy of Sciences, San Francisco.

SALIENT CHARACTERS: Length 5 mm. Width 2.1 mm. Color grey, slightly mottled brown and black, slight cupreous luster to some scales; no pronotal vittae present. Tarsal bristles and tibial spinules pale yellow.

Rostrum with slightly concave, somewhat arcuate, broad, transverse constriction at base; subapical area triangular-shaped, central part raised, scales spaced further apart; setal vestiture about same length as head setae; median sulcus narrow extending from antennal articulation to posterior margin of basal transverse constriction. Pronotum smooth, as broad as long (1.7:1.7); sides convex; longer setae four times longer than head setae, length of setae on sides twice the width of elytral intervals; no median sulcus. Elytral intervals flat; setae arranged in two to three irregular rows per interval and two and one-half times longer than interval width; dorsum flattened, sides subparallel, posterior end not greatly inflated. Metaepisternal suture visible at posterior end. Hind tibia with 7 spinules in distal comb before normal position of mucro (no mucro present); anterior comb with 5 to 7 spinules, the unique type has a different number of spinules on each hind tibia. Fore tibiae with 6 spinules at apex, exclusive of pale colored mucro.

DISCUSSION: The following combination of structural characters will distinguish *nevadicus* from the other species of *Cryptolepidus*: setae of pronotum and elytra at least twice longer than elytral interval width; pronotum smooth and not sulcate; tibial spinules and tarsal bristles pale amber color; rostrum with rather broad, somewhat arcuate, transverse basal constriction.

CRYPTOLEPIDUS PLANIFRONS, new species

(Plate 26)

TYPE LOCALITY: Nevada (9 miles n. w. of Gerlach, Washoe Co.).

DISTRIBUTION: Known only from type locality.

TYPE: Holotype female (V-29-39, P. C. Ting, collector, *Sarcobatus vermiculatus*) deposited in the California Academy of Sciences, San Francisco (C. A. S. Ent. No. 4936). One paratype and a badly worn specimen, both females, in the author's collection.



**SALIENT CHARACTERS:** Length 5.8 mm.-6 mm. Width 3.3 mm.-3.5 mm. Color grey and white faintly mottled light brown; pronotal vittae faint, light tan. Tarsal bristles and tibial spinules pale yellow to amber color.

Rostrum without basal transverse constriction; front and dorsum of rostrum on same plane; fine median sulcus broadest in apical half; setae same length as on head; subapical area depressed and V-shaped, a small convex, glabrous V-shaped area at base of nasal plate; nasal plate nearly truncate at apex. Pronotum smooth or slightly granular, one-fourth broader than long (2:1.5); no median sulcus; sides strongly convex; setae two to three times longer than head setae. Elytral intervals slightly convex; setae in two to three irregular rows per interval and about one-fourth longer than interval width; elytral broad, robust. Metaepisternal suture not or only visible in posterior third. Distal and anterior combs of hind tibia separated by about the length of individual spinule; spinules quite regularly placed and about same length in each comb; distal comb with 11 to 12 spinules; anterior comb with 3 to 5 spinules. Fore tibia with 11 spinules at apex exclusive of black mucro and ventral comb. Female genitalia similar to *leechi*, but with "valvifers" and coxal apices shorter. Eighth abdominal sternite not emarginate at apex. Males unknown.

**DISCUSSION:** The following characters taken together will distinguish *planifrons* from the other known species: rostrum without basal transverse constriction so that the front between the eyes is on the same plane with the dorsum of the rostrum; elytral setae as long or longer than interval width; pronotum one-fourth broader than long and strongly convex at sides.

**CRYPTOLEPIDUS LEECHI, new species**

(Plates 24, 25, 26)

**TYPE LOCALITY:** California (Baker, San Bernardino Co.).

**DISTRIBUTION:** Type locality. A single specimen the exact origin of which is unknown was intercepted at Yermo Plant Quarantine Station, California.

**TYPE:** Holotype male and Allotype female (IV-30-37, H. B. Leech, M. A. Cazier, P. C. Ting, collectors, *Atriplex* sp.) and four paratypes deposited in the California Academy of Sciences, San Francisco (C. A. S. Ent. Nos. 4822-4823). Paratypes distributed as follows: six in the United States National Museum; two in the Los Angeles Museum; two in the collection of the State Department of Agriculture, San Francisco; four in the collection of H. B. Leech; seven in the collection of M. A. Cazier; seventeen and five specimens in the author's collection.

**SALIENT CHARACTERS:** Length 5.5 mm. - 8.5 mm. Width 2.9 mm. - 3.9 mm. Color predominantly white often mottled with tan or dark brown; scales sometimes with cupreous luster; pronotal vittae obscure or faint tan or brown. Tarsal bristles and tibial spinules nearly black.

Rostrum with only a faint basal transverse constriction; dorsum of rostrum on a slightly lower plane than front between eyes; narrow median sulcus; setae same length as head setae; subapical area slightly and broadly depressed with a semicircular or V-shaped glabrous region immediately back of nasal plate; nasal plate prominent and with broad, deep emargination having straight margins. Head with front between eyes slightly convex. Pronotum smooth or very slightly granular; only slightly broader than long (2.2: 2) with sides slightly convex; often with faint median sulcus; setae about same length as head setae. Elytral intervals flat; setae extremely short one-fourth to one-third as long as interval width; striae fine; sides nearly parallel. Metaepisternal suture visible for posterior half. Spinules of each comb on hind tibia about same length; distal comb with 6 to 7 spinules; anterior comb 4 to 7 spinules. Fore tibia with ventral comb and adjacent brush as shown in Plate 26. Male and female genitalia as shown in Plates 24, 25. Eighth abdominal sternite of female (Plate 25) deeply emarginate at apex.

**DISCUSSION:** *C. Leechi* is distinguished from all other known species in the genus by its extremely short setal vestiture which length of the elytra is one-fourth to one-third the interval width. Other diagnostic characteristics are: the slightly convex front between the eyes; the nearly black tarsal bristles and corbel spinules; the rather narrow prothorax with only slightly convex sides.

**CRYPTOLEPIDUS CAZIERI** (Van Dyke), new combination

(Plates 24, 25, 26)

1936. *Cimbocera cazieri* Van Dyke, p. 73 (1936a).

**TYPE LOCALITY:** Of Holotype California (Baker, San Bernardino Co.). Of Allotype California (Vidal, San Bernardino Co.).

**DISTRIBUTION:** California (Baker, Vidal, Essex, San Bernardino Co.; Keeler-Darwin Road, Inyo Co.; Mojave, Cantil, Kern Co.; Blythe, Riverside Co.). Arizona (Ehrenberg, Yuma Co.).

**TYPE:** Holotype, a female, in the California Academy of Sciences, San Francisco. A male from Vidal, California (V-12-39, W. A. Miller, collector) is here designated as Allotype and deposited in the California Academy of Sciences, San Francisco (C. A. S. Ent. No. 4946).

**SALIENT CHARACTERS:** Length 5.2 mm. - 7.1 mm. Width 2.5 mm. - 3.2 mm. Color tan mottled with darker brown, sides of prothorax and elytra a light grey; pronotal vittae dark to nearly black. Tarsal bristles and tibial spinules amber color.

Rostrum with pronounced basal transverse constriction; dorsum convex from base to nasal plate; narrow median sulcus, setae same length as head setae; first funicular segment of antennae more elongate than in other species of the genus; antennal scrobes broader near posterior end than in other species; sub-apical area broadly depressed between antennal articulation forward to base of nasal plate with scales separated by over half their diameter, scales on rest of rostrum are imbricated; nasal plate broadly and shallowly emarginate. Pronotum tuberculate; often with median sulcus; broader than long (2.1: 1.8) with sides convex; setae slightly longer than head setae. Elytral intervals flat occasionally slightly convex in males; setae about three-quarters length of interval width arranged in two to three irregular rows per interval; dorsum of elytra quite flat in females. Meta-episternal suture not or only visible in posterior third. Hind tibia with spinules of anterior comb about two-thirds length of those in distal comb; spinules quite regularly placed; distal comb with 10 to 13 spinules; anterior comb with 5 to 9 spinules. Fore tibia with more spinules in ventral comb than in other species. Male and female genitalia as shown in Plates 24, 25. Eighth abdominal sternite of female not emarginate at apex.

**DISCUSSION:** *C. cazieri* is easily distinguished from the other species by the following combination of characters: pronotum tuberculate; dorsum of rostrum convex from base to nasal plate. It is the only known species in the genus which is predominantly tan or brown.

#### CRYPTOLEPIDUS RUGICOLLIS, new species

(Plates 24, 25, 26)

**TYPE LOCALITY:** Nevada (3 miles north of Lovelock, Pershing Co.).

**DISTRIBUTION:** Known only from type locality.

**TYPE:** Holotype male and Allotype female (VI-7-38, P. C. Ting, collector, *Atriplex* sp.) and four paratypes deposited in the California Academy of Sciences, San Francisco (C. A. S. Ent. Nos. 4824-4825). Paratypes distributed as follows: six in the United States National Museum; one in the Los Angeles Museum; one in the collection of the State Department of Agriculture, San Francisco; two in the collection of M. A. Cazier; one in the collection of H. B. Leech; eight in the author's collection.

**SALIENT CHARACTERS:** Length 5.5 mm. - 7.5 mm. Width 2.9 mm. - 3.8 mm. Color predominantly grey faintly mottled with tan or dark brown; scales often with cupreous luster; pronotal vittae generally present and light tan. Tarsal bristles and tibial spinules amber to dark brown.

Rostrum with shallow transverse constriction at base; broad median sulcus, triangular-shaped in cross section; setal vestiture same length as head setae; subapical area depressed and V-shaped with a small V-shaped glabrous region immediately back of nasal plate; nasal plate nearly truncate at apex. Pronotum tuberculate and rugose; broader than long (2.1: 1.8) with sides evenly and strongly convex; generally with median sulcus; setae slightly longer than head setae. Elytral intervals flat or slightly convex; setae as long or slightly longer than interval width; setae arranged in two to three irregular rows per interval. Metaepisternal suture visible in posterior third. Spinules of anterior comb on hind tibia slightly shorter than those of distal comb; distal comb with 7 to 9 spinules; anterior comb 3 to 6 spinules. Fore tibia with ventral comb similar to *leechi*. Female genitalia similar to *leechi* but with coxal apices and "valvifers" proportionately shorter and broader; "valvifers" proportionately longer than in *planifrons*. Male genitalia as shown in Plate 24. Eighth abdominal sternite of female truncate at apex similar to *planifrons*.

**DISCUSSION:** This species is easily separated from the others in the genus by following combination of characters: tuberculate and rugose pronotum; dorsum of rostrum longitudinally flat; rostrum with broad median sulcus; color grey.

#### GENUS *MILODERES* Casey

1888. *Miloderes* Casey, p. 252-253.  
1909. *Miloderes*, Pierce, p. 346-348.  
1913. *Miloderes*, Pierce, p. 379-380.  
1935. *Miloderes*, Van Dyke, p. 4.  
1936. *Miloderes*, Van Dyke, p. 75-77. (1936a.)  
1938. *Miloderes*, Van Dyke, p. 2.

**GENOTYPE:** *Miloderes setosus* Casey (monotypic).

**SALIENT CHARACTERS:** Setal vestiture long and suberect; scales closely applied, imbricated or merged on elytra. Rostrum extremely short, its length slightly less than distance between eyes; nasal plate short, hardly visible under low magnification; prementum bisetose about one-third wider than long, maxillae completely covered; postmentum not evident as a peduncle; antennal scrobes deep, narrow, parallel-sided extending posteriorly

and ventrally to a point nearly opposite lower end of eye; antennal scape reaching to lower hind margin of eye; first five funicular segments longer than broad and not cupped at apices. Eyes slightly elongate in vertical plane. Postocular prothoracic lobes slightly evident or obsolete; vibrissae present. Elytral intervals and striae poorly defined; humeri rounded. Third tarsal segment, particularly of male, expanded, much larger than second. Male with small apical tufts of pubescence on first, second, and third tarsal segments of fore legs; occasionally with same arrangement on tarsi of middle legs, but always on third tarsal segment; hind legs with pubescent tufts at apex of third tarsal segment. Female with small apical tufts of pubescence on third, tarsal segment only of all legs. All tibiae mucronate; tibial apices in both sexes expanded. Claws free. Female genitalia flexible near apices of "valvifers", but not at base of coxal apices; coxal styli absent.

DISCUSSION: The broad prementum completely covering the maxillae, absence of postmental peduncle, and expanded tibial apices will separate this genus from others in the *Cimbocera* group. The expanded tibial apices superficially resemble those of *Stercogaster globosa* Van Dyke and the genus *Trigonoscuta* Mots. The labial structure completely covering the maxillae indicates that *Miloderes* is not closely related to *Cimbocera*. The female genitalia, however, resembles *Cimbocera* and its close relatives.

#### KEY TO SPECIES

- Color brown and silvery grey. Fore tibiae with outer apical portion evenly rounded. Scales of pronotum and elytra with central puncture ..... *setosus* Casey
- Color uniform green. Fore tibiae with outer apical portion elongated. Scales of pronotum and elytra without central puncture ..... *viridis* Pierce

#### MILODERES SETOSUS Casey

(Plates 24, 25, 26)

1888. *Miloderes setosus* Casey, p. 253-254.  
 1909. *Miloderes setosus* Casey, Pierce, p. 347-348.  
 1913. *Miloderes setosus* Casey, Pierce, p. 379-380.  
 1935. *Miloderes setosus* Casey, Van Dyke, p. 4.  
 1936. *Miloderes setosus* Casey, Van Dyke, p. 75-76 (1936a).

TYPE LOCALITY: California (Kern Co.).

DISTRIBUTION: California (Kern Co.; Baker, Essex, San Bernardino Co.).



TYPE: In Casey collection, United States National Museum.

SALIENT CHARACTER: Length 4 mm. - 6 mm. Width 2.5 mm. - 3.1 mm. Color reddish-brown with silvery scales; each scale of pronotum and elytra with a central puncture. Setae of pronotum and elytra one-third as long as width of pronotum.

Rostrum as wide as long with broad transverse impression just posterior to antennal articulation. Pronotum broader than long; about evenly rounded at sides; postocular lobes present as angular points opposite lower end of eye. Elytral setae inserted between scales and arranged in somewhat regular rows. Fore tibiae with outer apical portion rather evenly rounded with spinules at apex evenly spaced. Middle tibiae with 9 to 10 spinules at apices exclusive of spinules posterior to tibial mucro. Hind tibia with single row of spinules at extreme apex—corbels open. Male and female genitalia as shown in Plates 24 and 25.

DISCUSSION: In general the males are more slender than the females and the median portion of the first and second apparent abdominal sternites is concave. Tarsal characters for determination of sex are given in the generic description.

#### MILODERES VIRIDIS Pierce

(Plates 24, 25)

1909. *Miloderes viridis* Pierce, p. 348.

1913. *Miloderes viridis* Pierce, Pierce, p. 380.

TYPE LOCALITY: Arizona (Keams Copper Mine, Navajo Indian Reservation).

DISTRIBUTION: Known only from type locality.

TYPE: In the United States National Museum.

SALIENT CHARACTERS: Length 4 mm. - 5.5 mm. Width 2 mm. - 2.8 mm. Color of derm reddish brown covered with green scales; scales of pronotum and elytra without central puncture. Length of vestiture similar to *setosus*.

Similar to *setosus* except for the following: Pronotum distinctly wider in apical half; not evenly convex at sides; postocular lobes practically obsolete. Fore tibiae with outer apical portion elongated with spinules crowded together at summit of apex. Middle tibiae with 12 to 15 spinules at apices exclusive of spinules posterior to tibial mucro. Hind tibiae with the spinules

of the anterior comb situated some distance before the apex of the tibia; the distal comb appears to be absent; the specimens examined may possibly have the spinules rubbed off, if this is true the corbels are closed. Male genitalia as shown in Plate 24.

DISCUSSION: The sexes may be distinguished by the secondary sexual characters given for *setosus*. *M. viridis* is readily separated from *setosus* by its green color, elongated outer apical portion of the fore tibiae, absence of the central puncture in the elytral scales, and in the structure of the male genitalia.

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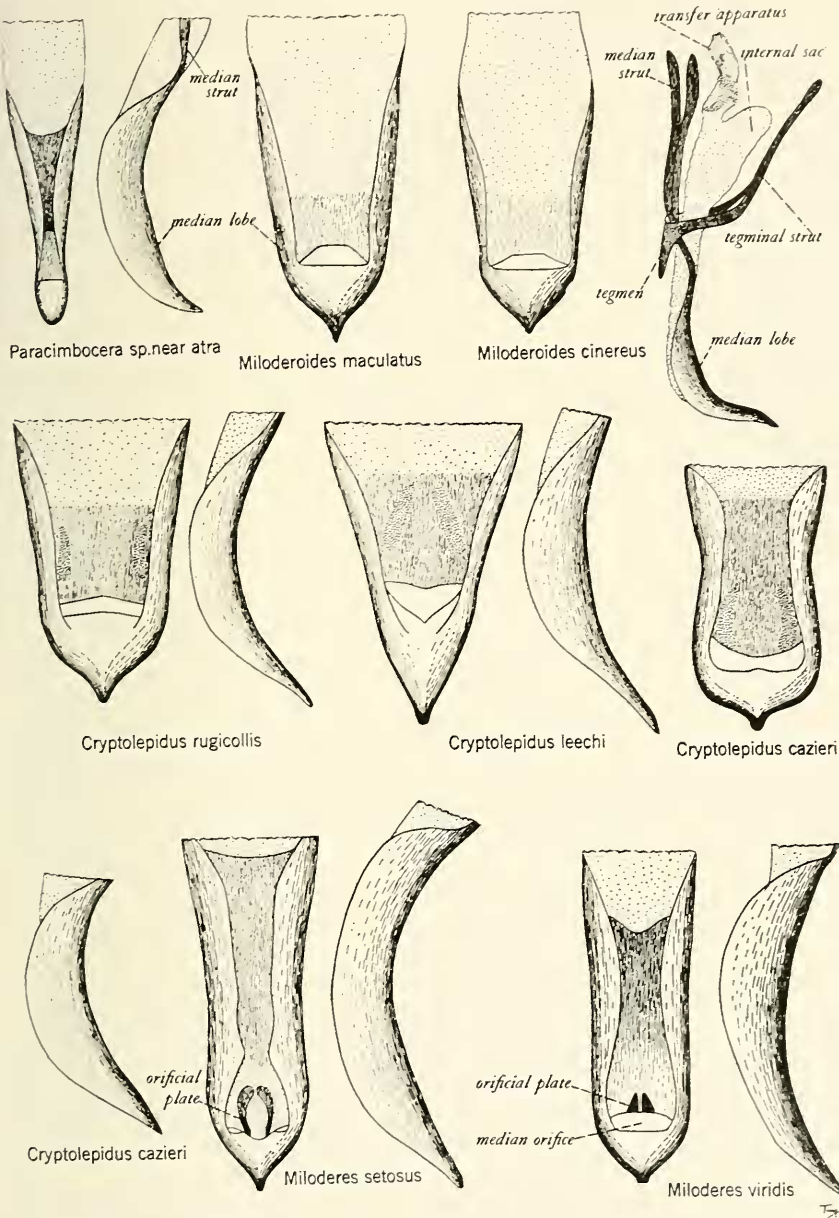
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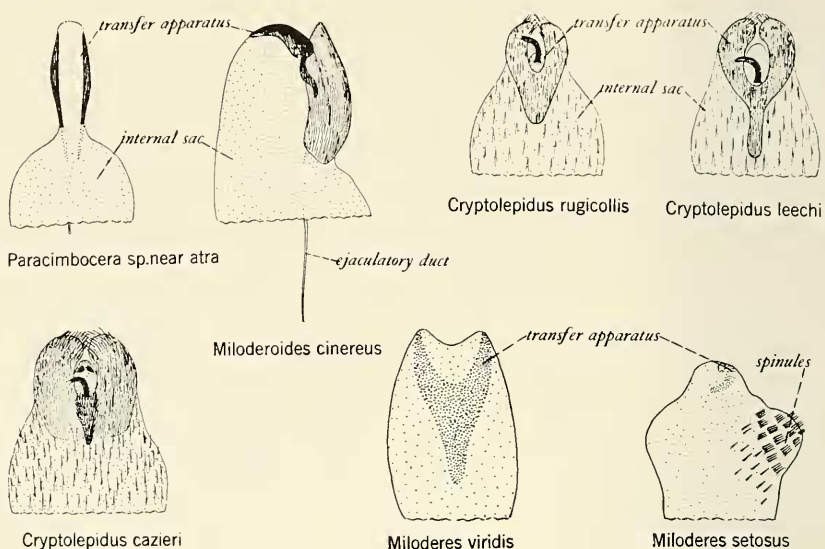
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<sup>4</sup> Not read by the present writer.

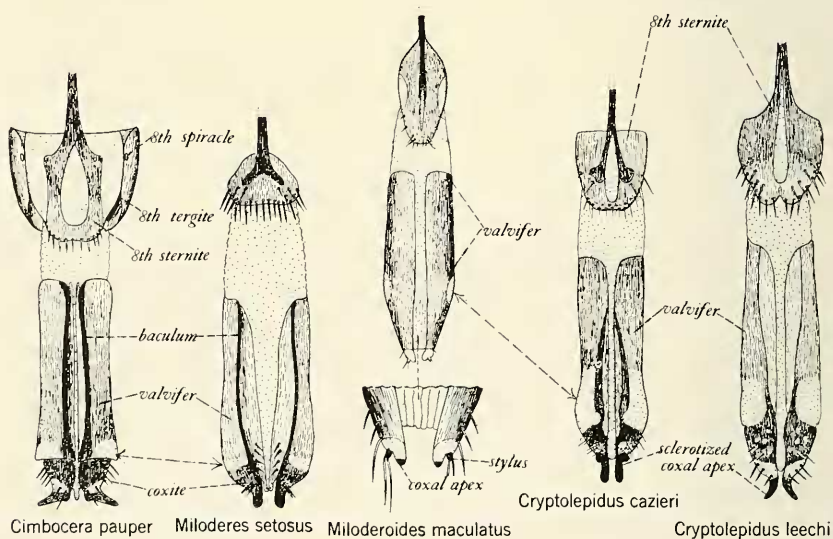


Male Genitalia - Dorsal And Lateral Views

PLATE 24

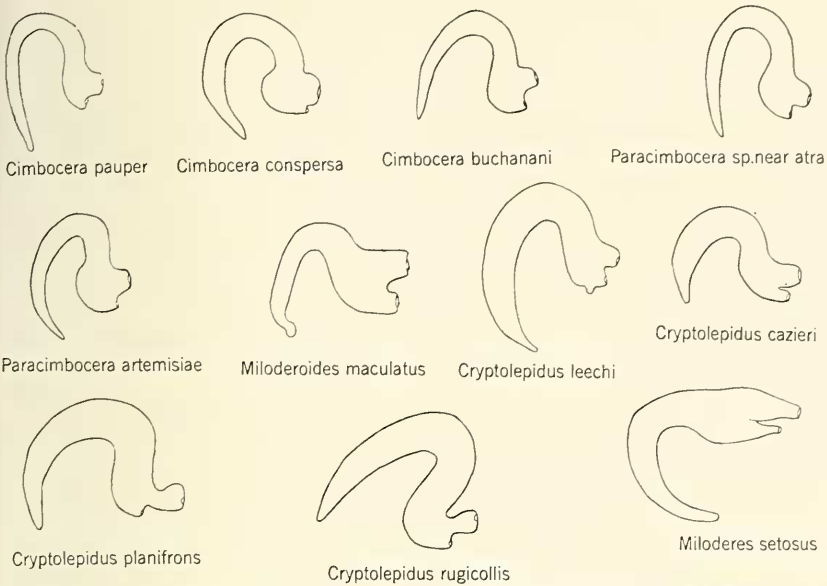


# Apices Of Internal Genital Sacs Of Male

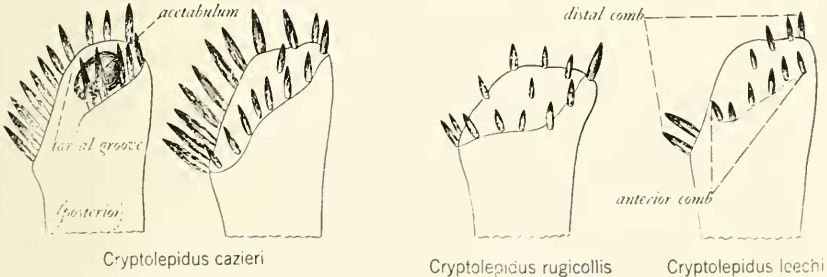
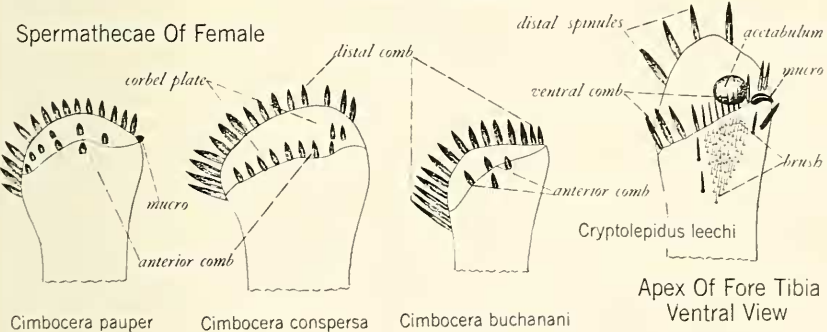


# Female Genitalia And Eighth Sternite-Ventral View





Spermathecae Of Female



Apices Of Hind Tibiae - Anterior View

PLATE 26